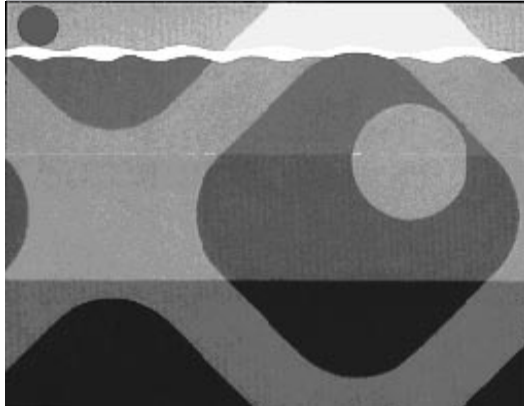


Part 2 LIVING MARINE RESOURCES

OUR LIVING OCEANS • 1995



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Northeast Demersal Fisheries

INTRODUCTION

Northeast demersal (groundfish) fisheries include about 35 species and stocks, primarily in New England waters, but also off the Mid-Atlantic states. In New England, the groundfish complex is dominated by members of the cod family (cod, haddock, hakes, pollock), flounders, dogfish sharks, and skates. Mid-Atlantic groundfish fisheries are primarily summer flounder, scup, goosefish, and black sea bass.

Northeast groundfish fishermen employ fishing gears such as otter trawls, gill nets, traps, and set lines. Otter trawling is the predominant fishing method for groundfish throughout the region (there were 1,040 otter trawl vessels in the fleet in 1993); gill nets contribute a substantial proportion of the catch in the Gulf of Maine (244 vessels fished gill nets in 1993). Many of the vessels participating in the groundfish fisheries switch gears on a seasonal basis. Recent average (1992-94) landings (U.S., Canadian, and recreational) of mixed groundfish in the Northeast region were about 185,000 t, with the 1994 total being even lower at 152,000 t (Table 1-1), only 31% of the estimated long-term potential.

Groundfish resources in the Northeast occur in mixed-species aggregations, resulting in significant bycatch interactions among fisheries directed to particular target species or species groups. Management is complex because of these interactions. This complexity is reflected, for example, in the use of differing mesh, gear, minimum landing sizes, and seasonal closure regulations, set by such entities as the New England and Mid-Atlantic FMCs, the states, ASMFC, and by the Canadian government, because of the trans-boundary nature of some stocks. New England groundfish are managed primarily under the Northeast Multispecies FMP (13 species), as well as peripherally under provisions of the ASMFC Northern Shrimp Management Plan. Summer flounder and weakfish (primarily Mid-Atlantic species) are currently managed under FMPs, and additional FMPs are in preparation for scup and black sea bass. Demersal fisheries in New England have been managed primarily by indirect methods

including mesh sizes, minimum fish lengths, and some area closures. There are currently no direct controls on New England groundfish fishing mortality rates through catch quota regulations, as in other regions, but an effort reduction program has been implemented, and in light of the recent collapse of the stocks of Atlantic cod,

Table 1-1. Northeast Demersal Fish Resources

Productivity in metric tons and status of fisheries resources

| Species | Recent Average Yield (RAY) ¹ | Current Potential Yield (CPY) | Long-Term Potential Yield (LTPY) | Fishery Utilization Level | Stock Level Relative to LTPY |
|-----------------------------------|---|-------------------------------|----------------------------------|---------------------------|------------------------------|
| Groundfish & Flounders | | | | | |
| Atlantic cod ^{2,3,4} | 33,100 | 16,000 | 45,000 | Over | Below |
| Pollock ^{2,3,5} | 29,200 | 29,000 | 37,000 | Full | Near |
| Silver hake | 16,000 | 16,000 | 100,000 | Over | Below |
| Summer flounder ³ | 8,500 | 6,600 | 26,000 | Over | Below |
| American plaice | 5,800 | 4,100 | 3,600 | Over | Below |
| Winter flounder ³ | 5,600 | 5,600 | 16,000 | Over | Below |
| Yellowtail flounder ² | 4,600 | 500 | 39,000 | Over | Below |
| Haddock ^{2,6} | 4,600 | 5,000 | 52,000 | Over | Below |
| Witch flounder | 2,500 | 2,700 | 3,000 | Over | Below |
| Red hake ³ | 1,900 | 1,900 | 40,000 | Under | Near |
| Windowpane | 1,400 | 1,400 | 2,100 | Over | Below |
| Redfish | 700 | 700 | 14,000 | Over | Below |
| Skates & Dogfish | | | | | |
| Spiny dogfish ^{2,3} | 19,200 | 35,000 | 35,000 | Full | Above |
| Skates | 9,700 | 25,000 | 25,000 | Under | Above |
| Other Finfish | | | | | |
| Goosefish ² | 18,200 | Unknown | 10,000 | Over | Below |
| White hake ^{2,7} | 8,100 | 5,500 | 7,700 | Full | Below |
| Scup ³ | 6,100 | 1,500 | 14,000 | Over | Below |
| Black sea bass ³ | 2,800 | Unknown | Unknown | Over | Below |
| Spot ³ | 2,000 | Unknown | Unknown | Unknown | Unknown |
| Cusk ^{2,8} | 1,900 | 1,500 | 1,500 | Over | Below |
| Weakfish ³ | 1,400 | Unknown | Unknown | Over | Below |
| Tilefish | 1,400 | 500 | 1,200 | Over | Below |
| Wolfish | 500 | 500 | 700 | Over | Below |
| Ocean pout | 300 | 300 | Unknown | Full | Near |
| Atlantic halibut | 35 | Unknown | Unknown | Over | Below |
| Total | 185,535 | 183,735 | 479,335 | | |
| U.S. Subtotal | 145,900 | 136,634 | 402,365 | | |

¹1992-94 average. Landings for 1994 are incomplete for some areas resulting in underestimated RAYs for some species.

²Includes more than 100 t/yr of foreign (Canadian) landings.

³Includes more than 100 t/yr of recreational landings.

⁴For cod, U.S. landings are 24,600 t (74% of RAY).

⁵For pollock, U.S. landings are 5,600 t (19% of RAY).

⁶For haddock, U.S. landings are 1,200 t (26% of RAY).

⁷For white hake, U.S. landings are 6,900 t (85% of RAY).

⁸For cusk, U.S. landings are 1,400 t (72% of RAY).

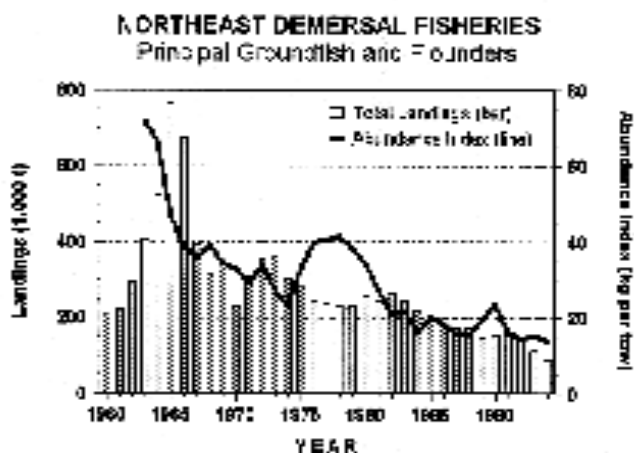


Fig. 1-1. Landings and abundance index of principal groundfish and flounders in the Northeast Region.

Northeast Groundfish & Flounder Landings (t)

| | |
|------|---------|
| 1993 | 112,800 |
| 1994 | 89,200 |

haddock, and yellowtail flounder, there is the strong likelihood of some type of stringent catch controls being imposed soon. The Summer Flounder FMP includes provisions for catch quota targets aimed at restoring this depleted stock.

Extensive historical data for the Northeast demersal fisheries have been derived from both fishery-dependent (i.e., catch and effort monitoring) and fishery-independent (NOAA research vessel) sampling programs. Since 1989, a sea sampling program has been conducted aboard commercial vessels, in order to document discard rates and to collect high quality, high resolution data on their catch. Despite the past management record, some of the Northeast demersal stocks (cod, yellowtail flounder, haddock, American plaice, pollock) are among the best understood and assessed fishery resources in the country.

SPECIES AND STATUS

Principal Groundfish and Flounders

The principal groundfish and flounders group includes important cod-family species (Atlantic cod, haddock, silver hake, red hake, white hake, pollock), flounders (yellowtail, summer, winter, witch, windowpane, American plaice) and redfish (Fig. 1-1). Recent annual landings of these 12 species (19 stocks) have averaged 113,900 t (63% U.S. commercial, 32% Canadian, and 5% U.S. recreational), compared

with LTPYs of 377,700 t (Table 1-1). Total ex-vessel revenue from principal U.S. groundfish and flounder commercial landings in 1994 was \$118 million, compared to \$161 million in 1992. The Northeast groundfish complex supports important recreational fisheries for species including summer flounder, winter flounder, and Atlantic cod.

The abundance index for this group declined by almost 70% between 1963 and 1974 (Fig. 1-1), reflecting substantial increases in exploitation associated with the advent of distant-water fleets. Many stocks in this group declined sharply, notably Georges Bank haddock, most silver and red hake stocks, and most flatfish stocks. By 1974, indices of abundance for many of these species had dropped to the lowest ever recorded.

Groundfish partially recovered during the mid-to-late 1970s because of reduced fishing effort associated with increasingly restrictive management under the International Commission for the Northwest Atlantic Fisheries (ICNAF) during the early-1970s, and implementation of the MFCMA in 1977. Cod and haddock abundance increased markedly; stock biomass of pollock increased more-or-less continually, and recruitment and abundance also increased for several flatfish stocks. The aggregate index peaked in 1978, but subsequently declined, reaching new lows in 1987 and 1988. The 1989 and 1990 abundance values were slightly higher than the previous two years, primarily due to recruitment of moderate 1987 year classes of Atlantic cod, haddock, and yellowtail flounder. However, subsequent abundance indices declined due in large part to the rapid depletion of the 1987 yellowtail flounder year class, and declining cod abundance. The 1994 index of groundfish abundance represented a time series (32-year) low. Landings of these species declined substantially in 1994 and are predicted to decline further in 1995 in the face of generally poor recruitment. Landings of cod, haddock, and yellowtail flounder are currently at the lowest level since the 1950s, when demand for fish and total fishing effort were low. Fishing effort directed to the groundfish complex reached a peak in 1992 and has since decreased.

Skates and Dogfish

Dogfish and skates are a significant and growing part of the aggregate groundfish stock biomass in the Northeast (Fig. 1-2). Of the two dogfishes (spiny and smooth), the spiny dogfish

is dominant by far. Seven species of skates, including little, winter, barndoor, brier, thorny, leopard, and smooth-tailed occur on the Northeast shelf: winter, little, and thorny skates produce most of the landings.

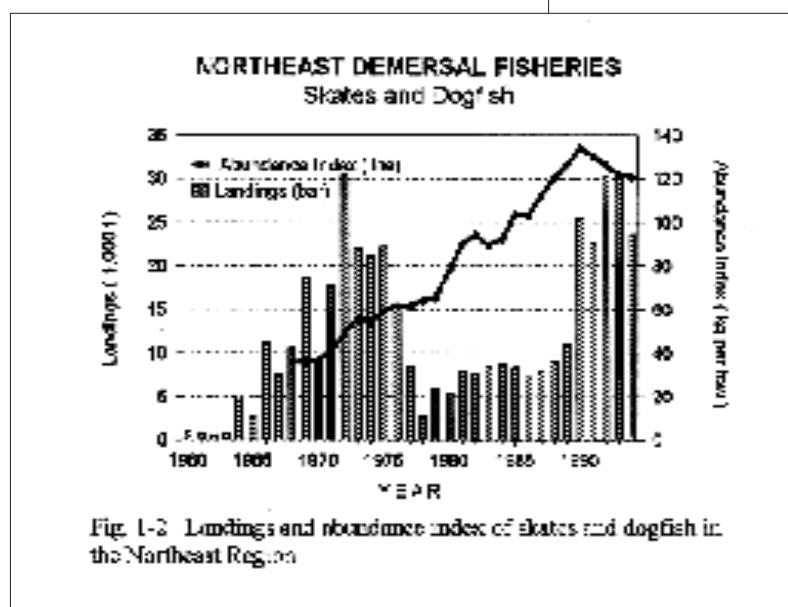
Skate and spiny dogfish landings underwent a marked increase from 2,700 t in 1978 to 31,400 t in 1992, and subsequently declined to 24,400 t in 1994. Recent annual landings averaged 28,900 t (Table 1-1). These landings levels are well below the long-term potential and current potential landings for these stocks. Abundance of skates and dogfish increased throughout the 1970s and 1980s, peaked in 1990, and declined each year since (Fig. 1-2). Despite these recent declines, overall abundance of skates and dogfish continues to remain high, although a 1994 assessment suggested that the spiny dogfish stock was near full exploitation. Increases in dogfish and skate abundance, in conjunction with declining abundance of groundfish and flounders, have resulted in the proportion of dogfish and skates in Georges Bank survey indices increasing from roughly 25% by weight in 1963 to nearly 75% in recent years.

Other Finfish

Other groundfish species taken primarily as bycatch in the Gulf of Maine include goosefish, white hake, cusk, wolffish, and Atlantic halibut. In Southern New England, goosefish and ocean pout are important groundfish stocks, and in the Middle Atlantic, scup, weakfish, black sea bass, spot, tilefish, and several others are landed either in directed fisheries or as bycatch. As a group, they are characterized generally as over-exploited, with recent annual landings totaling about 42,700 t, below the long-term maximum (Table 1-1). Most of these stocks are managed implicitly with other species included in various FMPs. For example, white hake, goosefish, cusk, wolffish, and halibut are taken in various groundfish fisheries regulated under the Northeast Multispecies FMP. Although scup and black sea bass represent major components of the summer flounder directed fishery, separate FMPs are under development for these stocks. ASMFC has developed an FMP for weakfish, and several other stocks are slated for inclusion in future FMPs.

The advent of directed fishing for goosefish at the edge of the continental shelf in the Middle Atlantic and Southern New England

areas has prompted interest in developing regulations for that fishery, primarily because very small individuals are landed from that fishery and as bycatch from sea scallop dredge fishing. Landings of goosefish have tripled since 1987 as a result of a sharp decline in the abundance of principal groundfish and flounders, and increased market demand, particularly for livers whose ex-vessel price can reach as high as \$12-13/lb. In 1994, the U.S. commercial landings of goosefish were 18,600 t, valued at \$26 million, making it the top-ranked demersal species in landings in the Northeast, exceeding even Atlantic cod for which the U.S. landings dropped to 17,500 t (valued at \$36 million).



ISSUES

Management Concerns

Until recently, New England groundfish resources were regulated by indirect controls on fishing mortality, including mesh and minimum fish size restrictions, and some area closures. In the face of persistent overfishing of the resource, the Conservation Law Foundation (CLF) and the Massachusetts Audubon Society filed litigation aimed at stopping overfishing. A consent decree was entered into between NOAA Fisheries and CLF stipulating that measures be developed that would eliminate the overfished condition of cod and yellowtail in 5 years and haddock in 10 years.

Northeast Skates and Dogfish Landings (t)

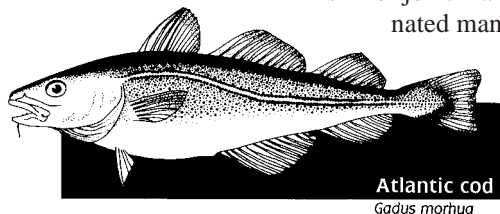
| | |
|------|--------|
| 1993 | 30,000 |
| 1994 | 23,600 |

Amendment #5 to the New England Multispecies FMP began an effort reduction program in 1994 to address these requirements. The regulatory package included a moratorium on new vessel entrants, a schedule of reduction in days at sea for trawl and gillnet vessels, increases in regulated mesh size, and expanded closure areas to protect haddock. The objective of the plan was to gradually eliminate the overfished condition of cod, yellowtail flounder, and haddock over 5-7 years. In light of a determination made late in 1994, based on new assessments that further declines in the abundance of cod, haddock, and yellowtail flounder on Georges Bank had led to the collapse of these stocks, development of Amendment #7 to the New England Multispecies FMP was begun for the purpose of reducing fishing mortality on these stocks to $F_{0.1}$ levels.

In contrast, the Summer Flounder FMP has instituted a strategy to reduce fishing mortality by 50% from 1992 to 1993 and eventually to achieve F_{max} . The Summer Flounder FMP uses catch quotas, allocated by state and season, to achieve these management goals. Recently, increased recruitment levels, combined with lower fishing mortality rates in 1993 and 1994, have resulted in increased biomass.

Transboundary Stocks and Jurisdiction

Significant catches are taken from transboundary stocks of Atlantic cod, haddock, and pollock from Canadian waters of Georges Bank and the Gulf of Maine. In 1994, 22% of the cod, 88% of the haddock, and 80% of the pollock landings were taken by Canadian fishermen. Management regulations employed by the two countries are fundamentally different: Canada seeks to achieve target fishing mortality rates through catch quota regulation. Although there is coordination of stock assessment activities between the countries, there is no formal mechanism for joint management. This lack of coordinated management effort has contributed to the severe overfishing of the shared resources.



Economics

Satisfying the conditions imposed by the overfishing definitions of the Multispecies and Summer Flounder FMPs will require significant effort reductions. Rebuilt stocks eventually would provide increased net benefits to producers and consumers, but in the

short-term, effort reductions will curtail revenues to fishermen, and raise prices to consumers. In order to rebuild the collapsed stocks of cod, haddock, and yellowtail flounder to threshold levels of spawning stock biomass capable of producing good recruitment, which could take 7-12 years. Very substantial reductions in fishing effort will be necessary in the New England area which will force many vessels out of the fishery. The ultimate net benefits of these effort reductions over Northeast groundfish resources will be both positive and substantial to the Nation as a whole.

Progress

Considerable progress in the development of management alternatives for the Northeast demersal resources was made during 1994. The implemented measures include days-at-sea reduction, increased minimum mesh sizes, a moratorium on new vessels, expanded closed areas to fishing, and trip limits for depleted haddock stocks. An annual review provision allows the level of effort reduction measures to be changed, depending on the actual state of fishing mortality relative to plan targets. Mandatory reporting systems for Northeast resources have been developed to better monitor the performance of the fishery. New measures are still under development to immediately and substantially reduce fishing mortality on stocks of cod, haddock, and yellowtail flounder below the levels required under Amendment #5 in order to rebuild spawning stock biomass back where recruitment prospects are likely to be enhanced over the long term. Revised assessments for principal species including cod, haddock, pollock, yellowtail flounder, witch flounder, American plaice, and white hake have documented patterns of fishing mortality, discarding, and recruitment, and form the basis for additional regulatory proposals.

Management of the summer flounder stock has proceeded with a short-term goal of reducing fishing mortality by 50% from 1992 to 1993, and eventually achieving F_{max} . A series of state-by-state allocations of the annual quota has been the primary regulatory measure. With improved recruitment, coupled with reduced fishing mortality, catch rates for the commercial and recreational sectors improved in 1993. Lower fishing mortality rates and slightly improved recruitment will result in increased landings and a rebuilding of the spawning stock biomass and its age structure (currently comprised primarily of age 0-2 fish). □